

## **QUESTION MARS – QUESTION SELECTION, EXPERIMENT DESIGN and REFINING YOUR EXPERIMENT**

Minimum materials required:

- 1 Internet-connected computer per team
- *Question Mars Student Guide*: 1 per student (students should already have this handout)

### *Working Hypothesis Development*

(D) Students Sheet # is important for students to discuss carefully as it asks them to formulate working hypothesis of possible answers to their Big Picture Question. Their hypothesis should be supported by their current observations rather than be just an unsupported guess. Students need to discuss their observations together in order to come up with all of the possible outcomes or explanations for their Big Picture Question and is based on the current trends they are observing. Even though they will only have made a few observations (at least ~7 observations per person), basing a hypothesis on those observations is essential. Students should formulate more than one hypothesis, but it is important that each hypothesis is based on trends they are seeing in the images and basic geologic principles.

As a team, the students will need to vote on the best or most likely hypothesis. This working hypothesis will be used to establish a final research question in the next session.

Typically, scientists will choose one of these hypotheses, collect data to answer the research question, then go back to research other working hypothesis. Scientists are iterative in their research design, while your class will most likely only be afforded the opportunity to research one of their working hypothesis.